IN THE SPECIFICATION:

Kindly amend the substitute specification, filed June 14, 2004, as follows.

1. Kindly replace the paragraph [0010] on page 5, lines 1-5, which begins with "According to a...," with the following new paragraph:

According to a preferred embodiment of the present invention, in the Octree division step (B), each of the divided cells is classified as one of the following: (a) non-boundary~~internal~~ cells 13a located in the interior of the object or in the region outside of the object, and (b) boundary cells 13b including boundary surfaces.

2. Kindly replace the paragraph [0012] on page 5, lines 10-14, which begins with "Furthermore, each...," with the following new paragraph:

Furthermore, each non-boundary~~internal~~ cell 13a has one kind of physical property value as its attribute, whereas each boundary cell 13b has two kinds of physical property values corresponding to the interior and exterior (i.e., outside) of the solid.

3. Kindly replace the paragraph [0037] on page 12, lines 15-22, which begins with "FIG. is a...," with the following new paragraph:

FIG. 4 is a schematic diagram showing the division method according to the present invention in two dimensions. According to the present invention, in the Octree

division step (B) described above, each of the divided cells 13, 130, 1300 is classified as either a ~~non-boundary, internal~~ cell such as 13a, 130a located in the interior of the object or in the region outside of the object, or as a boundary cell, such as 130b, 1300b, that includes the boundary surfaces.

4. Kindly replace the paragraph [0038] on page 12, line 23, to page 13, line 9, which begins with "That is, the...," with the following new paragraph:

That is, the present invention uses a modified Octree for representing boundary cells such as 130b, 1300b, wherein a cell included wholly in the interior of the boundary or wholly in a region outside of the boundary is a ~~non-boundary, internal~~ cell, such as cells 13a, 130a, which are cubes of largest size. On the other hand, in accordance with the present invention, a cell having boundary information from the external data 12 contained therein is a boundary cell such as cells 130b, 1300b. Each boundary cell, such as 130b, 1300b, can be strictly or approximately replaced by cut points 15 (shown by open circles in Figure 4) on twelve ridge lines in three dimensions, and on four ridge lines in two dimensions.

5. Kindly replace the paragraph [0045] on page 15, lines 12-18, which begins with "FIG. 5 is...," with the following new paragraph:

FIG. 5 is a schematic diagram showing attributes of each cell in accordance with

the present invention. ~~A non-boundaryn internal~~ cell, such as cell 13a described above, has one kind of physical property value as its attribute, whereas a boundary cell, such as cell 130b, has two kinds of physical properties which are related to the interior of the object and regions outside of the object.

6. Kindly replace the paragraph [0046] on page 15, lines 19, to page 16, line 3, which begins with "In other words,...," with the following new paragraph:

In other words, although each cell is classified as either a ~~non-boundaryn internal~~ cell or a boundary cell, and further each cell (whether a ~~non-boundaryn internal~~ cell or a boundary cell) includes two kinds of space cells (utilized for reconstructing fluid, using Euler methods) and shift deformation cells (utilized for reconstructing solid, using Lagrange methods). For V-CAD, only boundary cells 13b have two attribute values, one corresponding to the attribute of the interior of the object and one corresponding to the attribute of the region outside of the object.

7. Kindly replace the paragraph [0050] on page 17, lines 10-19, which begins with "Among examples of...," with the following new paragraph:

Among examples of variable values are: for each cell, stress (i.e., symmetrical tensile amount having 6 variables) and distortion (i.e., symmetrical tensile amount having 6 variables) and the like; flow rate; pressure; temperature; and the like. In the simulation

process, when a difference in variable values occurs that is larger than an allowable pre-designated value between adjacent ~~non-boundary~~internal cells, re-division is automatically performed according to the above described Octree division method until the difference decreases and falls within the allowable pre-designated value.

8. Kindly replace the paragraph [0055] on page 21, lines 1-11, which begins with "FIGs. 7A and 7B...," with the following new paragraph:

FIGs. 7A and 7B are two dimensional schematic diagrams such as shown in FIG. 4, and provides a comparison of the division method according to the present invention (i.e., the modified Octree method) with the conventional Octree. FIG. 7A illustrates a conventional Octree, and FIG. 7B shows an example of modified Octree performed in accordance with the present invention. This comparative example demonstrates the case of division of a thin board (i.e., the portion with scattered dots in FIGs. 7A and 7B), which is a hard object for a space division method, such as conventional Octree, to deal with.